

Atoms and Bonding ▪ *Guided Reading and Study*

Atoms, Bonding, and the Periodic Table (continued)

Valence Electrons and Bonding (pp. 12–13)

- _____ are those electrons that are held most loosely in an atom.
- Is the following sentence true or false? The number of valence electrons in an atom of an element determines the ways in which the atom can bond. _____
- Identify each element and the number of valence electrons it has.



- a. _____

- b. _____

- c. _____

- Circle the letter of each sentence that is true about valence electrons and chemical bonding.
 - Most atoms are less stable when they have eight valence electrons.
 - Atoms with eight valence electrons easily form compounds.
 - Having eight valence electrons makes atoms very reactive.
 - Atoms with eight valence electrons are less likely to form chemical bonds than atoms with fewer valence electrons.
- Is the following sentence true or false? When atoms form bonds, electrons may be transferred or shared between atoms. _____

The Periodic Table (pp. 14–20)

- How are elements represented in the periodic table?

- The _____ of an element is the number of protons in the nucleus of an atom.
- What is a row of elements across the periodic table called?

- Describe how atomic number changes across a period of elements.

- What are elements in the same column of the periodic table called?

- Elements within a group always have the same number of _____.

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12. Complete the table about groups of elements in the periodic table.

Group Number	Group Name	Number of Valence Electrons	Reactivity (High/Low)
1	a.	1	b.
17	c.	7	d.
18	e.	8	f.

13. How many valence electrons can atoms of nonmetals have?

14. Describe two ways that nonmetals can combine with other elements.

15. Compared to metals and nonmetals, how do atoms of metalloids behave when combining with atoms of other elements?

16. Is the following sentence true or false? Hydrogen is considered to be a metal. _____